



AF/3730
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In the patent application of::
Edward J. A. Pope :
and Kenneth M. Kratsch :
For: Preceramic polymers :
to hafnium carbide and : Margaret G. Moore
hafnium nitride ceramic :
fibers and matrices : Examiner
Serial No. 10/058,808 : Art Unit 3730
Filed: January 28, 2002 :

BRIEF

This is a brief for an appeal from a final rejection rejecting claims 7 and 8 mailed September 27, 2004. The notice of appeal was filed January 31, 2005. The brief was due March 31, 2005. The application and claims are properly formed and the issues are distilled and ripe for appeal.

Status of All Claims

Claims 7 and 8 presently exist in the application. An appendix containing a copy of the claims 7 and 8 on appeal is attached to this brief.

Status of Amendments After Final Rejection

The applicants did not file a request for reconsideration.

Summary of the Invention

The present invention is a hafnium carbide containing ceramic fiber that is derived from a pre-ceramic polymer and that is formed by a process that includes steps of

melting a hafnium containing pre-ceramic polymer, extruding the polymer through an orifice to form fiber; cross-linking the fiber and heating the cross-linked fiber under controlled atmospheric conditions at a temperature greater than 600 degrees centigrade to obtain a hafnium carbide containing ceramic fiber.

Grouping of Claims

Claims 7 and 8 are grouped together.

Issues Presented for Review

Are claims 7 and 8 anticipated by either Uemura or Hilmas.

The Examiner has rejected claim 8 under 35 U.S.C. 102(b) as being anticipated by Uemura. The Examiner has stated that Uemura teaches carbon fibers that are reacted with a compound and a carbide ceramic layer is formed on the fiber and that hafnium carbide is a preferred choice. The Examiner has also stated that each fiber in Uemura has a ceramic layer so that it can be considered a ceramic fiber.

The Examiner rejected claims 7 and 8 either under 35 U.S.C. 102(b) as being anticipated by Hilmas or under 35 U.S.C. 103(a) as obvious over Hilmas. The Examiner has stated that Hilmas does not specifically teach a step of cross-linking the fiber and has also noted that this

limitation does appear to lend any distinction to the final claimed product. The Examiner has also stated that Hilmas does not specifically teach heating at a temperature greater than 600 degrees in order to pyrolyze the fiber.

Argument

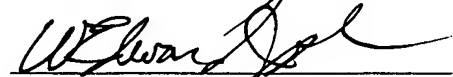
The Examiner has agreed that the product by process steps found in claim 7 is distinguished from the fiber by the process found in Uemura. The applicants have amended claim 8 to depend from claim 7.

Hilmas does not specifically teach a step of cross-linking the fiber. The applicants believe that this limitation does lend distinction to the final claimed product. Hilmas does not specifically teach heating at a temperature greater than 600 degrees in order to pyrolyze the fiber.

A reversal of the rejection of claims 7 and 8 under 35 U.S.C. 102(b) as being unpatentable over either Uemura or Hilmas therefore is earnestly solicited.

Dated: May 2, 2005

Respectfully submitted,



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APPENDIX

Claim 1 is cancelled.

Claim 2 is cancelled.

Claim 3 is cancelled.

Claim 4 is cancelled.

Claim 5 is cancelled.

Claim 6 is cancelled.

7. Hafnium carbide containing ceramic fiber derived from a pre-ceramic polymer formed by a process comprising the steps of:

- a. melting a hafnium containing pre-ceramic polymer;
- b. extruding said polymer through an orifice to form fiber;
- c. cross-linking said fiber; and
- d. heating said cross-linked fiber under controlled atmospheric conditions at a temperature greater than 600 degrees centigrade to obtain a hafnium carbide containing ceramic fiber.

8. (As amended) A ceramic fiber is a hafnium carbide derived from a pre-ceramic polymer according to claim 7.